

CLAIMS

1. A device for transmitting optical signals, said device comprising:
 - an optical input accepting said optical signals;
 - a control device directing said optical signals between said at least one optical input and an optical output; and
 - a channel located between said optical input and said optical output confining said optical signals to a pre-determined path.
2. The device of claim 1 wherein said control device comprises at least one mirror element configured to reflect said optical signals within said device.
3. The device of claim 2 wherein each of said at least one mirror elements comprises a cantilever having a magnetically sensitive portion and a reflective portion.
4. The device of claim 3 wherein said cantilever is configured to be switched between a first state and a second state by one of a plurality of electromagnetic signals.
5. The device of claim 4 wherein each of said electromagnetic signals are configured to induce a torque in one of said cantilevers corresponding to one of said plurality of mirror elements, such that said cantilever is switched between said first state and said second state.

6. The device of claim 5 wherein said plurality of electromagnetic signals comprise magnetic signals generated by a plurality of conductors.
7. The device of claim 5 wherein said plurality of electromagnetic signals comprise electrostatic signals generated by a plurality of electrodes.
8. The device of claim 1 wherein said channel comprises at least one reflective wall.
9. The device of claim 8 wherein said reflective material comprises one of the group consisting of aluminum, gold, silver and chromium.
10. The device of claim 5 wherein said channel comprises at least one reflective wall.
11. The device of claim 10 wherein said reflective material comprises one of the group consisting of aluminum, gold, silver and chromium.
12. The device of claim 8 wherein said channel comprises at least one channel mirror configured to receive said optical signal and to direct said optical signal through said channel.
13. The device of claim 10 wherein said channel comprises at least one channel mirror in optical communication with one of said mirror elements, wherein said channel mirror is

configured to receive said optical signal and to direct said optical signal through said channel.

1 14. A method of switching an optical signal between a first output and a second output, the
2 method comprising the steps of:

3 providing a switching element comprising a cantilever having a reflective portion;

4 and

5 switching said cantilever such that said reflective portion is placed the path of
6 said optical signal when said optical signal is desired at said first
7 output, and such that said reflective portion is placed out of the
8 path of said optical signal when said optical signal is desired at
9 said second output.

15. The method of claim 14 further comprising the step of conducting said optical signal
through a channel, wherein said channel comprises a reflective wall.

16. The method of claim 15 wherein said conducting step comprises directing said optical
signal away from said reflective wall with a channel mirror.

17. The method of claim 15 wherein said cantilever is configured to be switched by one of a
plurality of electromagnetic signals.

18. The method of claim 17 wherein said electromagnetic signals produce a magnetic torque in said cantilever.
19. A switch configured to execute the method of claim 15.
20. A switch configured to execute the method of claim 18.